

What is claimed is:

1. In a data storage environment having a first volume of data denominated as the source being stored on a data storage system, and a second volume of data denominated as the clone and which has data content that is a copy of the data content of the source being stored on the data storage system or on another data storage system, a method of managing data content during a restoration of the source, the method comprising the steps of:
 - restoring the source by copying data content from the clone to overwrite the data content of the source, allowing host reads and writes to the Source during the restore;
 - if preserving the data content of the clone is selected, then not allowing the data content of the clone to be overwritten by host writes during the restoring step; and
 - if preserving the data content is not selected, then overwriting the data contents of the clone during the restoration and determining extents on the source affected by any host write request; and
 - if any extents affected by the host write request are involved in the restoration and preserving is not selected, then setting an indicator to indicate that the extents need to be re-copied.
- 20 2. The method of claim 1, wherein the source and the clone are each represented by respective first and second logical units.

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Docket Number: EMC-03-100-CIP2
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Express Mailing Label No. EK900600327US

3. The method of claim 1, wherein a map denominated as a protected restore map is used to track extents of the source that are modified during the preserving step if selected.

4. The method of claim 1, wherein a map denominated as a clone delta map is used
5 to track extents of the clone that may be different from the clone and the source.

5. The method of claim 2, wherein a map denominated as a protected restore map is used to track extents of the source that are modified during the preserving step if selected.

10 6. The method of claim 2, wherein a map denominated as a clone delta map is used to track extents of the clone that may be different from the clone and the source.

7. The method of claim 6, wherein a map denominated as a protected restore map is used to track extents of the source that are modified during the preserving step if selected.

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8. A system for managing data content during restoration of data from a second volume of data to a first volume of data, the system comprising:
a data storage system having a first volume of data denominated as the source being stored on a data storage system, and a second volume of data denominated as the clone and which has data content that is a copy of the data content of the source being stored on the data storage system or on another data storage system;

computer-executable program logic configured for causing the following computer-executed steps to occur:

restoring the source by copying data content from the clone to overwrite the data content of the source, allowing host reads and writes to the Source during the restore;

- 5 if preserving the data content of the clone is selected, then not allowing the data content of the clone to be overwritten by host writes during the restoring step; and if preserving the data content is not selected, then overwriting the data contents of the clone during the restoration and determining extents on the source affected by any host write request; and

- 10 if any extents affected by the host write request are involved in the restoration and preserving is not selected, then setting an indicator to indicate that the extents need to be re-copied.

9. The method of claim 8, wherein the source and the clone are each represented by 15 respective first and second logical units.

10. The method of claim 8, wherein a map denominated as a protected restore map is used to track extents of the source that are modified during the preserving step if selected.

- 20 11. The method of claim 8, wherein a map denominated as a clone delta map is used to track extents of the clone that may be different from the clone and the source.

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12. The method of claim 9, wherein a map denominated as a protected restore map is used to track extents of the source that are modified during the preserving step if selected.

13. The method of claim 9, wherein a map denominated as a clone delta map is used
5 to track extents of the clone that may be different from the clone and the source.

14. The method of claim 13, wherein a map denominated as a protected restore map is used to track extents of the source that are modified during the preserving step if selected.

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15. A program product for use in a data storage environment and being for managing data content during restoration of data from a second volume of data to a first volume of data, wherein the data storage environment includes:

a data storage system having a first volume of data denominated as the source

15 being stored on a data storage system, and a second volume of data denominated as the clone and which has data content that is a copy of the data content of the source being stored on the data storage system or on another data storage system; and-

the program product includes computer-executable logic contained on a computer-readable medium and which is configured for causing the following computer-

20 executed steps to occur:

restoring the source by copying data content from the clone to overwrite the data content of the source, allowing host reads and writes to the Source during the restore;

- if preserving the data content of the clone is selected, then not allowing the data content of the clone to be overwritten by host writes during the restoring step; and if preserving the data content is not selected, then overwriting the data contents of the clone during the restoration and determining extents on the source affected by any host write request; and if any extents affected by the host write request are involved in the restoration and preserving is not selected, then setting an indicator to indicate that the extents need to be re-copied.
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